

**CONNECTICUT RIVER BRIDGE
014 ORFORD – FAIRLEE**

NH Bridge ID: Orford 062/124

CARRYING: Bridge Street, NH 25A
PRESENT NAME: Samuel Morey Memorial Bridge
DATE BUILT: 1937
LAT/LONG: 43.907153,-72.139556

CROSSING CHRONOLOGY

- 1775 Ferry established
- c.1802 1st toll bridge, wood trestle
- 1809 Freshet destroys bridge
- 1810 2nd bridge, 4 wood spans, stone & timber piers
- 1856 3rd bridge erected, 2-span covered Town truss
- 1896 Bridge freed of toll
- 1936 Bridge severely damaged in flood; demolished
- 1937 4th bridge, steel arch
- 2002 Steel arch rehabilitated by New Hampshire



FIGURE 1: Orford-Fairlee Arch Bridge, New Hampshire end (Historic Documentation Co. Inc. 2012).

CROSSING HISTORY

Ferry crossing: In 1775 the New Hampshire governor and council granted William Simpson of Plymouth rights to operate “a Ferry Boat or Boats for the transporting of Men Horses Goods Cattle Carriages &c across Connecticut River in the Town of Orford.” These rights changed hands several times, eventually passing in 1800 from by Israel Morey to his son Samuel (for whom the present bridge is named) for \$1,200.

First bridge: William Simpson and others petitioned for the chartering of a corporation to be named the Proprietors of the Orford Bridge, which was chartered by the New Hampshire legislature in 1794. By 1802 the Proprietors had erected a toll bridge, described by Timothy Dwight, president of Yale College, as a “neat bridge, consisting of one very obtuse arch, supported by trestles.” This first bridge was destroyed by a freshet in 1809.

By 1809 the crossing between Orford and Fairlee was gaining importance. Two turnpikes had been chartered by the New Hampshire legislature with the bridge as the northern terminus in New Hampshire for both of these improved highways. The Orford Turnpike, established 1803, connected Orford Bridge with another span over Baker’s River in the town of Wentworth to the east. The Grafton Turnpike, chartered 1804, connected the bridge with the Fourth Turnpike to the south. It became known as the “Great Feeder,” carrying large quantities of traffic from Vermont through Orford, to the state capital of Concord and to the seaports of Portsmouth and Boston. These highways established Orford as a center of commerce in the 19th century and Orford Bridge as a key transportation link between Vermont and New Hampshire.

Second bridge: The commercial success and increasing importance of their first toll bridge motivated the Proprietors of Orford Bridge to quickly rebuild. In 1810 the corporation completed a more substantial structure carried on three stone and timber piers rather than on trestles. The second Orford Bridge survived until 1856.

Third bridge: The third bridge at the Orford crossing was constructed in 1856 by New Hampshire bridge builders James F. Tasker and Bela J. Fletcher. The covered bridge was of the Town lattice truss design. Bridges of this type supplanted most of the older Connecticut River bridges during the mid-nineteenth century. The strong and resilient lattice truss design, enabling lengthy spans, allowed the use of a single stone pier in the center of the river.

In 1896, the towns of Orford and Fairlee jointly purchased the bridge from the Proprietors and made it a free crossing. An ice jam damaged the pier in 1905, but this was repaired, although the state Bridge Commission of 1906 predicted that the bridge would require replacement because it was frequently endangered by ice and/or high water. It held fast against the 1927 flood, but during the great flood of March 1936 the river again rose several feet above the bridge floor, further weakening it. Engineers determined that repair and strengthening the 80 year old structure to carry modern traffic was not economically feasible. Due to the important historic engineering significance of the structure, the Works Progress Administration approved funding for the documentation of the bridge by the National Park Service Historic American Buildings Survey program. In April 1936, the HABS field team measured and photographed the bridge under the direction of Professor Eric Huddleston of the University of New Hampshire. Later in 1936 the bridge was demolished with explosives to make way for a modern bridge.

Fourth bridge: The existing steel arch bridge was designed by John H. Wells of the New Hampshire Highway Department, who also designed a similar but smaller tied-arch bridge in Woodstock, N.H., in 1939. Wells was assisted by R.S. Burlingame, who drafted the plans and participated in some aspects of the design work. Both men reported to Harold E. Langley, the assistant bridge engineer of the department, who in turn reported to John W. Childs, chief bridge engineer. The destruction of the suspension bridge over the Connecticut River between Chesterfield and Brattleboro by the 1936 flood, and the similarity in the river's width and bank profile at the two sites, led to the decision to build essentially identical single-span steel arch bridges.

Difficult foundation conditions at Orford-Fairlee dictated that the bridge be a tied arch, with a tensile member at the floor level to join the ends of the arch ribs and eliminate the horizontal thrust component on the abutments. The two bridges differ slightly, the most obvious departure being the diagonal arch-rib bracing that points upward on the Orford span and downward on the Chesterfield span.

The Orford-Fairlee arch bridge was fabricated by the American Bridge Company and erected by the Hagen-Thibodeau Construction Company of Wolfeboro, NH, for a total cost of \$209,360.53. It was officially named the "Samuel Morey Memorial Bridge" at its dedication on June 29, 1938. The bridge won an award from the American Institute of Steel Construction in 1937 as second-best in its class while the Chesterfield-Brattleboro Bridge won first-place honors in Class C the same year. The Samuel Morey Bridge was documented in 2000 for NHDOT, in accordance with the standards of the Historic American Engineering Record. The bridge was substantially rehabilitated in 2002.

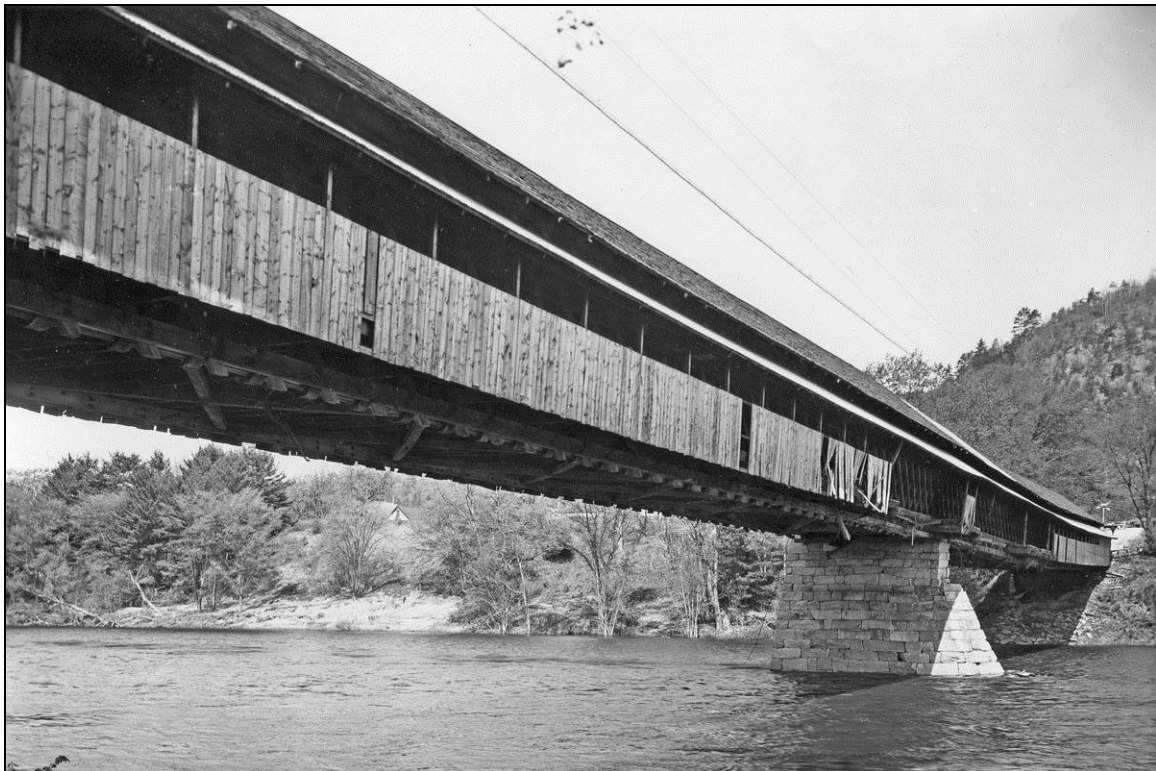


FIGURE 2: Orford Bridge, built 1856. Upstream side from Orford shore, May 14, 1936 (HABS 1936).



FIGURE 3: Orford Bridge, built 1856. Downstream side from Orford shore, May 14, 1936 (HABS 1936).



FIGURE 4: Orford Bridge, built 1856. New Hampshire portal November 1, 1922 (Storrs 1922).



FIGURE 5: Orford Bridge, built 1856. Interior view toward Fairlee, May 14, 1936 (HABS 1936).

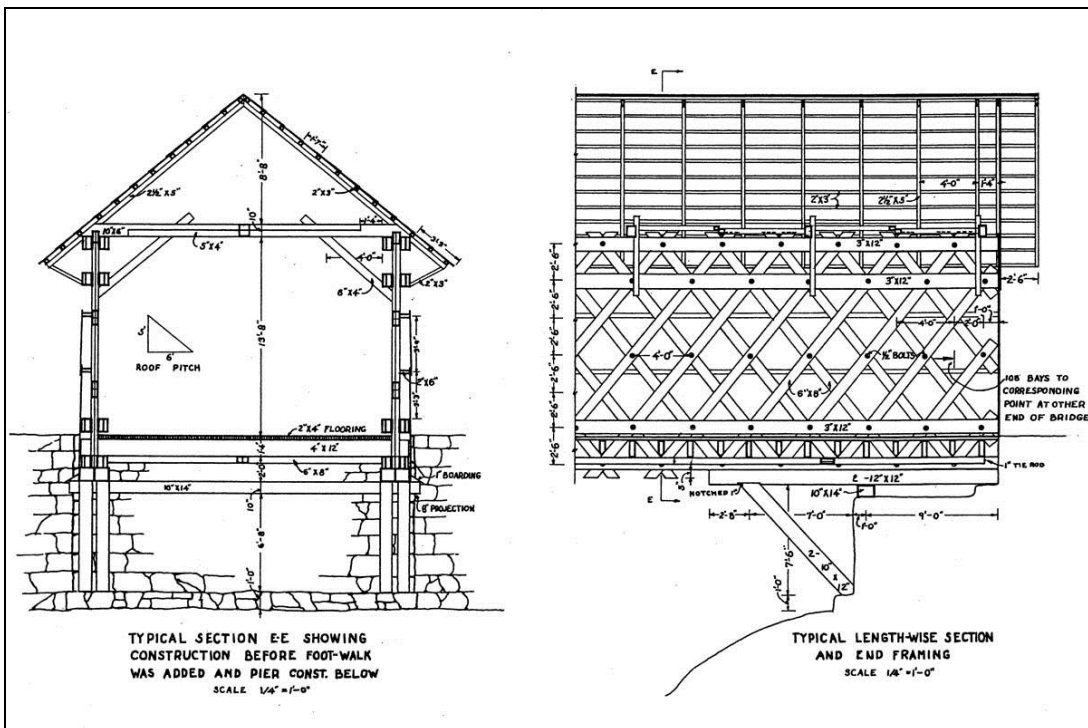


FIGURE 6: Orford Bridge, section drawings from HABS NH-29 measured drawings, sheet No. 3 of 5. See online HABS documentation for additional drawings (HABS 1936).



FIGURE 7: Orford-Fairlee Arch Bridge, New Hampshire approach, New Hampshire Highway Department inspection in 1941 (NHDOT 1941).



FIGURE 8: Orford-Fairlee Arch Bridge, downstream elevation (Historic Documentation Co. Inc. 2012).



FIGURE 9: Orford–Fairlee Arch Bridge, view thru superstructure to Vermont (Historic Documentation Co. Inc. 2010).

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